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RE: *McGuffin v. Dannels, et al.*
U.S.D.C. District of Oregon
Case Nos. 6:20-cv-01163-MK and 3:21-cv-01719-MK

Dear Counsel,

My name is Huma Nasir and I am a Forensic DNA Consultant. I previously served as a Forensic Analyst/Supervisor and the Technical Leader of a private DNA lab, Cellmark Forensics in Dallas, TX until this lab merged with a forensic lab in Virginia and became Bode Cellmark Forensics. I have a Master of Science degree in Pharmaceutical Sciences with a concentration in Forensic Serology and DNA from the University of Florida. I have over twenty years of experience in Forensic DNA analysis and I have personally performed DNA testing and/or analysis for thousands of forensic cases.

I was asked to perform a document review of the DNA testing performed by the Oregon State Police Forensic Laboratory (OSP Lab) in the above referenced case. Among other materials, I have reviewed the following OSP lab casework protocols and laboratory reports related to the DNA analysis performed in this case:

- OSP bench notes and case file including electropherograms/allele charts for samples tested
- OSP lab report dated August 27, 2000 signed by Mary Krings
- OSP lab report dated January 21, 2002 signed by Mary Krings
- OSP lab report dated May 24, 2010 signed by Susan Hormann
- OSP lab report dated November 10, 2010 signed by Susan Hormann
- OSP lab report dated May 9, 2017 signed by Marla Kaplan
- Amended OSP lab report dated May 17, 2017 signed by Marla Kaplan
- OSP lab report dated October 10, 2017 signed by Janelle Moore
- Cybergenetics report for this case dated August 9, 2018

As a result of this review, I have made the following observations and formed the following opinions:

1. The OSP Lab tested three cuttings, 1.1, 1.2 and 1.3, from the right Nike tennis shoe (Exhibit 1). The results from this sample are reported as follows in the report dated August 27, 2000:

   "The DNA profile from Exhibit 1 (right Nike shoe)…matches the DNA profile from Leah Freeman…".

   The lab did not report the results obtained from each cutting taken from the right Nike tennis shoe; rather, only one general conclusion was reported for Exhibit 1 – that as matching Leah Freeman.

   Although, it is correct that the DNA obtained from the right Nike tennis shoe matches Leah Freeman, that is not the complete or only conclusion that can be made from the testing performed on this exhibit. The results from each of the cuttings taken from the right Nike tennis shoe should have been reported separately since they were 3 separate samples. Failing to report all results is a significant departure from professional and scientific standards for forensic DNA labs.

2. By reporting one general conclusion from the right Nike tennis shoe, the lab failed to report that the DNA profile obtained from cutting 1.3 is in fact consistent with a mixture of two individuals, including one minor male contributor. The major profile in this sample matches Leah Freeman and the minor profile is generated from an unknown male. Nicholas McGuffin and several other individuals tested are excluded as possible contributors to this mixture profile.

3. According to the laboratory's analysis protocols at the time, there were clear guidelines provided to recognize a mixture profile. In addition, the protocol stated "Peaks between 50 and 150 RFU will be considered for purposes of exclusion". However, the records I reviewed show that the protocol was not followed in this case. The minor alleles in cutting 1.3 are in fact between 50 and 150 RFU and they clearly exclude Nicholas McGuffin; however, this exclusion was never reported. In fact, the lab did not even report that a mixture including a male was obtained from this sample. Ignoring the mixture profile including a male and simply reporting that the profile is consistent with the victim was not the "best" result or the most "conservative" result to report. Even if the minor alleles were below the 150 RFU threshold, the standards and protocols required the lab at least report this sample as a mixture profile including at least one male. If their protocols did not allow statistical calculations on these peaks below 150 RFU, the lab should have at least stated that a mixture profile was obtained with an unknown male but this data was unsuitable for comparison.

4. Omitting the fact that cutting 1.3 produced a mixture profile including a minor male and that Nicholas McGuffin is excluded from this mixture profile was a significant departure from professional and scientific standards. Omitting these results from the report created the misleading impression that only a single source profile consistent with Leah Freeman was obtained from this sample. Failure to report these results was not the conservative approach; it was simply incorrect and misleading. This is especially critical because, as a forensic DNA lab, the OSP Lab should report conclusions in a manner that would allow a lay person reading the lab report to know that a mixture profile was obtained from this sample and there was presence of male DNA in the sample. To determine that there was additional information obtained from testing of the samples in this case requires a review and understanding of the technical data, including lab notes, worksheets and electropherograms. A lay person without technical expertise in DNA analysis would be led to believe from the OSP Lab report that

only Leah Freeman's profile was obtained and there is no additional profile obtained from this sample. Professional and scientific standards require forensic DNA labs to report all conclusions from all tested evidence.

5. Upon inquiring regarding the additional male profile not being reported from sample 1.3, the lab claimed that the analyst did not interpret the alleles present below 150 RFU threshold and therefore did not report the additional data. However, the lab notes indicate otherwise. The lab notes show that the analyst interpreted the DNA profile as a mixture, and there are handwritten notes stating "mixture female major" (see attachment 1). The bench notes reflect an interpretation of a mixture of more than one individual. Furthermore, the note indicating a "major female" in the sample means that there is also the presence of a minor donor. Despite the bench notes documenting the interpretation of a mixture, the analysts did not report the interpretation as such.

6. The lab issued an updated report after the profiles obtained in this case were re-examined and the mixture profiles were re-interpreted. I agree with the conclusions reported in lab report dated May 9, 2017 regarding cutting 1.3 from the right Nike shoe.

7. The OSP lab also tested the left Nike tennis shoe (Exhibit 2). For cutting 2.3 taken from the left Nike tennis shoe, the lab's conclusions were reported as follows in the report dated August 27, 2000:

   "The DNA profiles from Exhibit 2.3 (left Nike shoe) indicate the presence of DNA from more than one person. The major profile is consistent from Leah Freeman. The minor profile is from a male".

   The report dated January 21, 2002 further states:

   "The DNA profile of Kip Oswald is consistent with the minor profile in the previously analyzed Exhibit 2.3 (left Nike shoe)".

   I do not agree with this conclusion. If the mixture profile is consistent with Leah Freeman and Kip Oswald, there are two additional alleles at D3 and D13 loci that are foreign to both Leah Freeman and Kip Oswald indicating either a third contributor or a contributor other than Kip Oswald. The lab, however, did not report either possibility. The lab's report creates the incorrect and misleading impression that the only contributors to Exhibit 2.3 (left tennis shoe) were Leah Freeman and Kip Oswald. Professional and scientific standards require that forensic DNA labs report all conclusions from all tested evidence.

   The data from testing shows that the DNA profile obtained from Exhibit 2.3 (left tennis shoe) is a mixture of two individuals including a male contributor. The major profile in this mixture matches Leah Freeman. The minor profile originated from an unknown male. Kip Oswald, Nicholas McGuffin and several other individuals are excluded as possible contributors to this mixture profile.

8. These conclusions regarding cutting 2.3 from the left Nike shoe were amended by the lab in 2017 and I agree with the conclusions reported in lab report dated May 9, 2017.

9. The OSP lab performed testing on additional items in 2010 and issued additional reports in this case. In the years prior to 2010, the analysis protocol was changed such that the

stochastic threshold was lowered to 100 RFU instead of 150 RFU. At this time, the lab should have re-interpreted the previously reported profiles and issue correct conclusions prior to the trial in 2011. However, the lab did not re-interpret or correct any of the previously reported conclusions. Therefore, although the lab had knowledge of data they generated where male DNA inconsistent with Nicholas McGuffin was detected on the right and left shoe, the lab did not reveal the presence of an unidentified male on the shoes at the time of the trial. The lab, further, did not issue amended reports to document the exclusion of Nicholas McGuffin as a contributor.

10. OSP Lab criminalist Kathy Wilcox performed presumptive testing for the presence of blood on the left shoe. Four areas are marked on the bottom sole of the shoe and are labeled "#1, #2, #3 and #4" (see attachment 2). Area #2 is labeled as "high velocity (small) blood droplet on side of traction square". However, the handwritten notes indicate that no presumptive blood testing was performed on swab #2 from the shoe. Without any presumptive or confirmatory serological testing for blood performed on a biological sample, it cannot be conclusively stated that the sample source is blood.

11. Forensic testing may be performed on evidentiary items to obtain answers to certain questions i.e. whether an individual's DNA is present on an item. However, once the DNA testing is performed and results are obtained, all results should be reported without bias. If an item was tested for wearer DNA and DNA was detected from someone other than the wearer of the item, the results from the unknown individual should be reported. To withhold any results after testing falls short of professional and scientific standards for forensic DNA labs.

After reviewing the data and report generated by retesting samples in this case in 2017, I conclude the following:

12. It is my professional opinion that there is a strong possibility that an unidentified individual contributed DNA to both the right and left Nike shoes of Leah Freeman.

13. This opinion is based on comparison of possible foreign alleles in the samples tested from the right and left Nike shoes. The possible foreign alleles considered are listed in Table 1 below. As seen in Table 1, there are identical alleles present at numerous loci/markers in samples from the right Nike shoe (Exhibits 1.2 and 1.3) and the left Nike shoe (Exhibits 2.6, 2.4.1ul and 2.5). The presence of identical alleles in samples from right and left Nike shoes indicates the likely presence of the same individual in both shoes. The data indicates that the same person may have touched or handled both the right and left shoes of Leah Freeman.

14. Foreign alleles are those deduced by subtracting a known profile from a mixture profile obtained. For example, if a mixture profile at a given locus/marker is "12,13,14,15" and an individual known to have contributed DNA to this profile has alleles 12,13, then the deduced foreign alleles would be 14 and 15. Foreign alleles are the alleles remaining in a mixture profile after the known individual's DNA profile is accounted for. In this case, I deduced the possible foreign alleles from the right and left shoe profiles by subtracting the known profiles of Leah Freeman and Kip Oswald.

15. There are two loci with identical alleles of note from samples taken from the right and left Nike shoes. At locus D1S1656, alleles 12 and 16.3 are obtained from Exhibit 1.2, cutting from heel of Right Nike shoe. Identical alleles are present at this locus in exhibits 2.6 (tongue swab of left Nike shoe), 2.4.1ul (ankle of left Nike shoe) and 2.5 (tongue cutting of left Nike

shoe). It is my professional opinion that it is highly probable these alleles were contributed to the right and left Nike shoes by the same unknown individual.

I calculated the frequency estimate of obtaining alleles 12 and 16.3 at this locus and this allele combination is expected to be found approximately 1 in 61 Caucasian individuals.

Similarly, allele 18.3 is observed in exhibit 1.2 and 1.3 (heel and ankle areas of Right Nike shoe) as well as in exhibit 2.6 (tongue swab of left Nike shoe) at the D12S391 locus. The frequency estimate of obtaining this allele is approximately 1 in 22 Caucasian individuals.

Random Match Probability (RMP) is a calculation to measure the probability of a random, unrelated person matching the genotype derived from the evidence.

A genotype obtained at any given locus/marker has a number of alleles, and each allele has a frequency in a certain race. This frequency is the RMP of that allele.

Using the random match probability calculation, the frequency estimate of obtaining alleles (12, 16.3) at locus D1S1656 **and** alleles (18.3, any allele) at locus D12S391 is approximately 1 in 1,462 Caucasian individuals. Therefore, this combination of alleles at these two loci is expected to be found 1 in 1,462 Caucasian individuals.
See Table 2 below for similar frequencies in African American and Hispanic populations.

The random match probability at these two loci provides further support for the same individual being present in both the right and left Nike shoes of Leah Freeman.

16. Based on the information provided above, it is my professional opinion that there is strong possibility that the same unknown individual is present in DNA profiles obtained from both the right and left shoes of Leah Freeman.

17. It is my professional opinion that Nicholas McGuffin's DNA is not identified on any evidentiary item associated with Leah Freeman.

18. I reserve the right to change my opinions if new information becomes available.

If I can be of further assistance in this matter, please do not hesitate to contact me.

Sincerely,

Huma Nasir.

Huma Nasir, MS, ABC-MB
Forensic DNA Consultant
HN Forensic Consulting LLC

Table 1: Possible Foreign Alleles Obtained from Right and Left Nike Shoes of Leah Freeman

Exhibit #	1.2	1.3	2.6	2.4.1ul	2.5
Sample Description	heel	ankle	tongue swab	ankle	tongue cutting
	Right Nike Shoe		Left Nike Shoe		
Locus					
D3S1358	15, 16, 18	15	15, 18	ND	15
vWA	16, 19	16, 20	16	15	ND
D16S539	12	12	12, 13	ND	ND
CSF1PO	ND	ND	ND	ND	ND
TPOX	12	11	ND	ND	ND
D8S1179	14, 15	11, 15	11, 14, 15	12	ND
D21S11	29, 30	29, 30, 31	31	ND	ND
D18S51	ND	14, 21	17	ND	ND
D2S441	14	14, 16	11.3, 14, 16	14	ND
D19S433	ND	ND	ND	ND	ND
TH01	6, 9, 9.3	6, 8, 9	8	8	ND
FGA	20, 21	19	21	20	ND
D22S1045	14, 16	17	11, 17	13.2, 17	ND
D5S818	12	12	ND	ND	ND
D13S317	ND	8, 12	8	ND	ND
D7S820	ND	8, 13	ND	ND	ND
SE33	ND	18	19	ND	ND
D10S1248	13, 16	13	16	ND	ND
D1S1656	12, 16.3	12	12, 16.3	12, 16.3	12, 16.3
D12S391	18.3, 19	18.3, 22	18.3, 21, 22	ND	ND
D2S1338	ND	17, 20	17	20	ND

ND = possible foreign allele(s) not determined

Notes:
1. Exhibits 1.2 & 1.3: Possible foreign alleles determined by subtracting the DNA profile of Leah Freeman from the mixture profiles obtained.

2. Exhibits 2.6 and 2.5: Possible foreign alleles determined by subtracting the DNA profiles of Leah Freeman and Kip Oswald from the mixture profiles obtained.

3. Exhibit 2.4.1ul: Possible foreign alleles provided by OSP lab labeled as Contributor 3 in STRMix analysis sheet on p. 798 of OSP case file. These alleles were obtained by subtracting the DNA profiles of Leah Freeman and Kip Oswald.

Table 2: Frequency Estimates and Random Match Probability (RMP) for D12S391 and D1S1656

Locus	Allele Combination	African American	Caucasian	Hispanic
D12S391	18.3, any allele	1 in 41	1 in 22	1 in 23
D1S1656	12, 16.3	1 in 81	1 in 64	1 in 103
RMP for D12S391 & D1S1656		1 in 3351	1 in 1462	1 in 2380

Notes:
1. Frequency estimates calculated using Allele frequencies provided in the GlobalFiler™ PCR Amplification Kit User Guide (2013).

Attachment 1

000773

GeneScan/Genotyper Results Control

Run Date: 072600
Analyst/Date Reviewed: MMK 072700

Inj.	Sample Name	Comments:	Reinj?	Reamp?	GT ?	Genotyper Notes
1	RUN CONTROL	OK			DL	
2	PP LADDER	OK			✓	
3	9947A CONTROL	OK PU AT 145B			✓	
4	PCR CONTROL	~~OK~~ MMK ROX			~~✓~~ MMK DL	
5	CO LADDER	OK 1087 / 2201 ;			DL	
6	OON-481 #1.1	OK SP AT 286BGY			✓	
7	OON-481 #1.2	OK NSD			✓	
8	OON-481 #1.3	OK MMK & MAJOR			✓	
9	OON-481 #2.1 ZA MMK	ROX MMK OS	✓		DL	
10	OON-481 #2.2	OK NSD			✓	
11	OON-481 #2.3	ROX	✓		DL	
12	OON-481 #2.1.2	OK SP AT 194B			✓	
13	OON-481 #2.1.4	ROX	✓		DL	
14	[redacted]	OK			✓	
15	PP LADDER	OK			✓	
16	[redacted]	OK			✓	
17	OOL-4094 #1.1EP1	ROX	✓		DL	
18	OOL-4094 #1.1 SP	ROX	✓		DL	
19	OOL-4094 #1.2EP1	OK SP AT: MMK MMK & MAJOR			✓	

000773 000773 000773 000773

Key:
OS = Off-scale data
ROX = Bad Injection/ROX
NC = Not c
PU = Pull-

SP = Spike
NSD = No signal detected
-A = -A der
Mx =

OL = Off-Ladder
Stutter
DL = D om GT

16

Attachment 2

OON481
7/17/00
Ex 2
KW

Left shoe

#2
"high" velocity (small) blood droplet on side of traction square

swab #1 PHTH (+)
trace of small droplet & smear - top of traction squares.

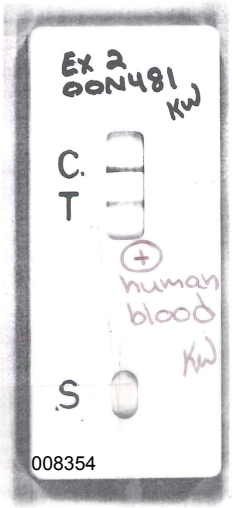
swab #2
small droplet on side of traction square.

swab #3
trace of two smears on top of traction squares.

swab #4 PHTH (+)
trace of two " " " " " " .

swab #5
reswabbed above areas ⇒ ABA card & PHTH (+).

swab #6
reswab of all possible blood areas.



Review of Forensic DNA Testing – Nicholas McGuffin Case

Huma Nasir, MS, F-ABC

Forensic DNA Consultant

July 2024

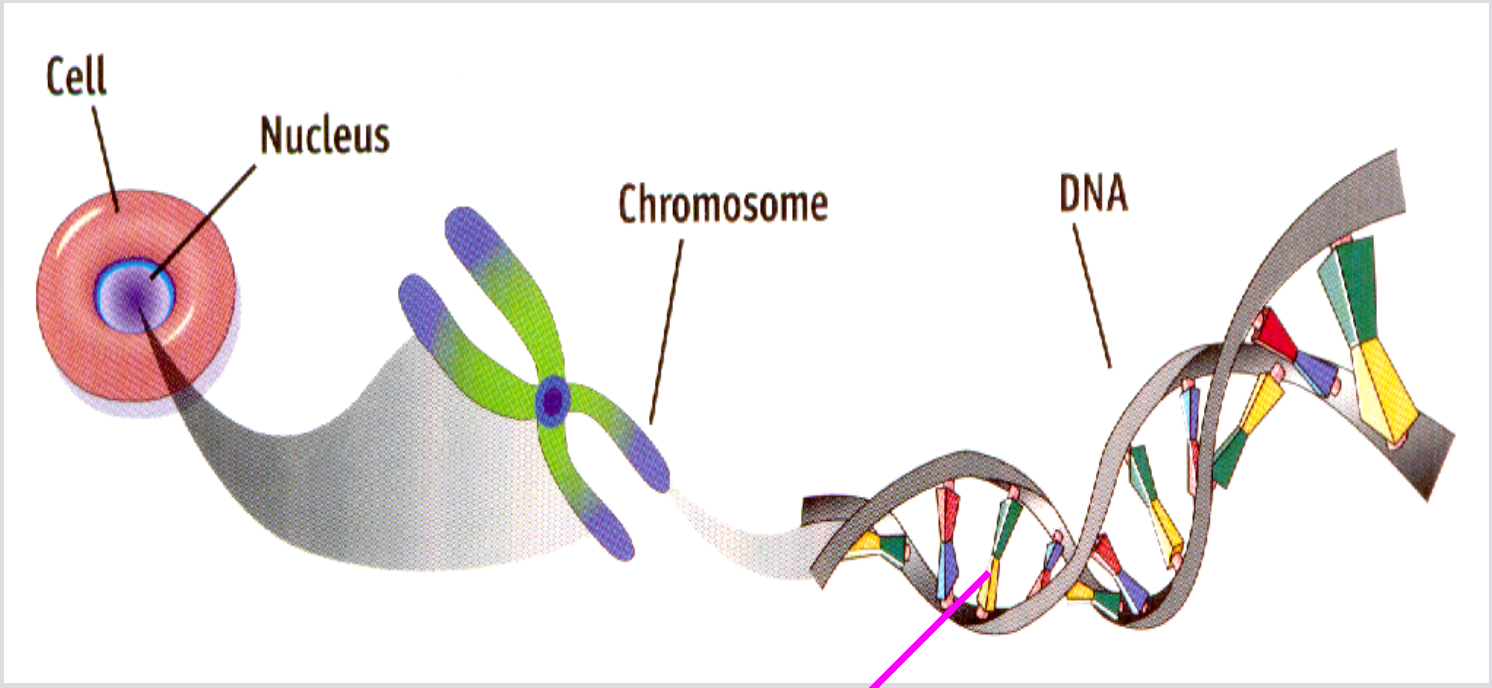
What is DNA?

DNA is the genetic material of all organisms. DNA determines who we are. Half of our DNA is inherited from our biological mothers and half is from our biological fathers.

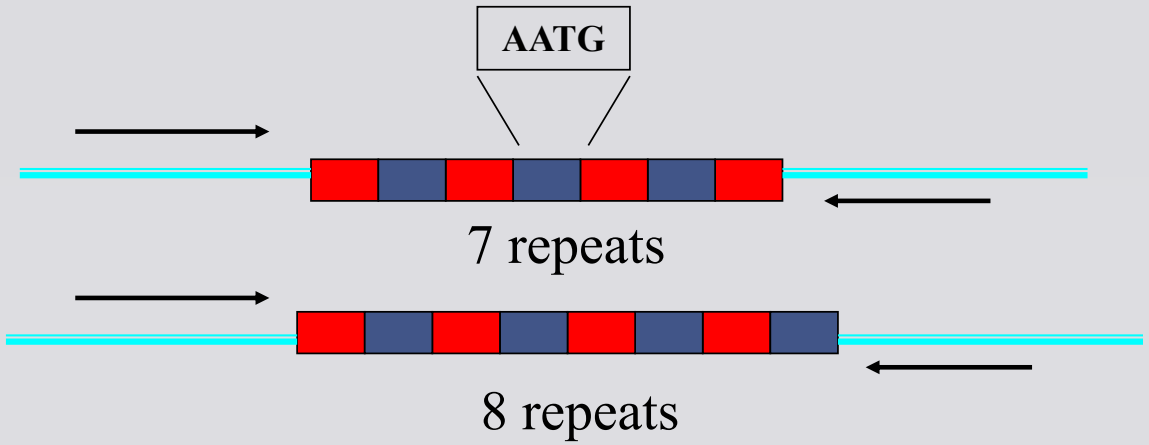
Where in the body is DNA found?
All nucleated cells

- Blood
- Saliva
- Epithelial or skin cells
- Sperm cells
- Tissue
- Bone
- Hair
- Sweat

DNA is present in nucleus of cells



Short Tandem Repeats (STRs)



The repeat region is variable between individuals while the flanking regions are the same

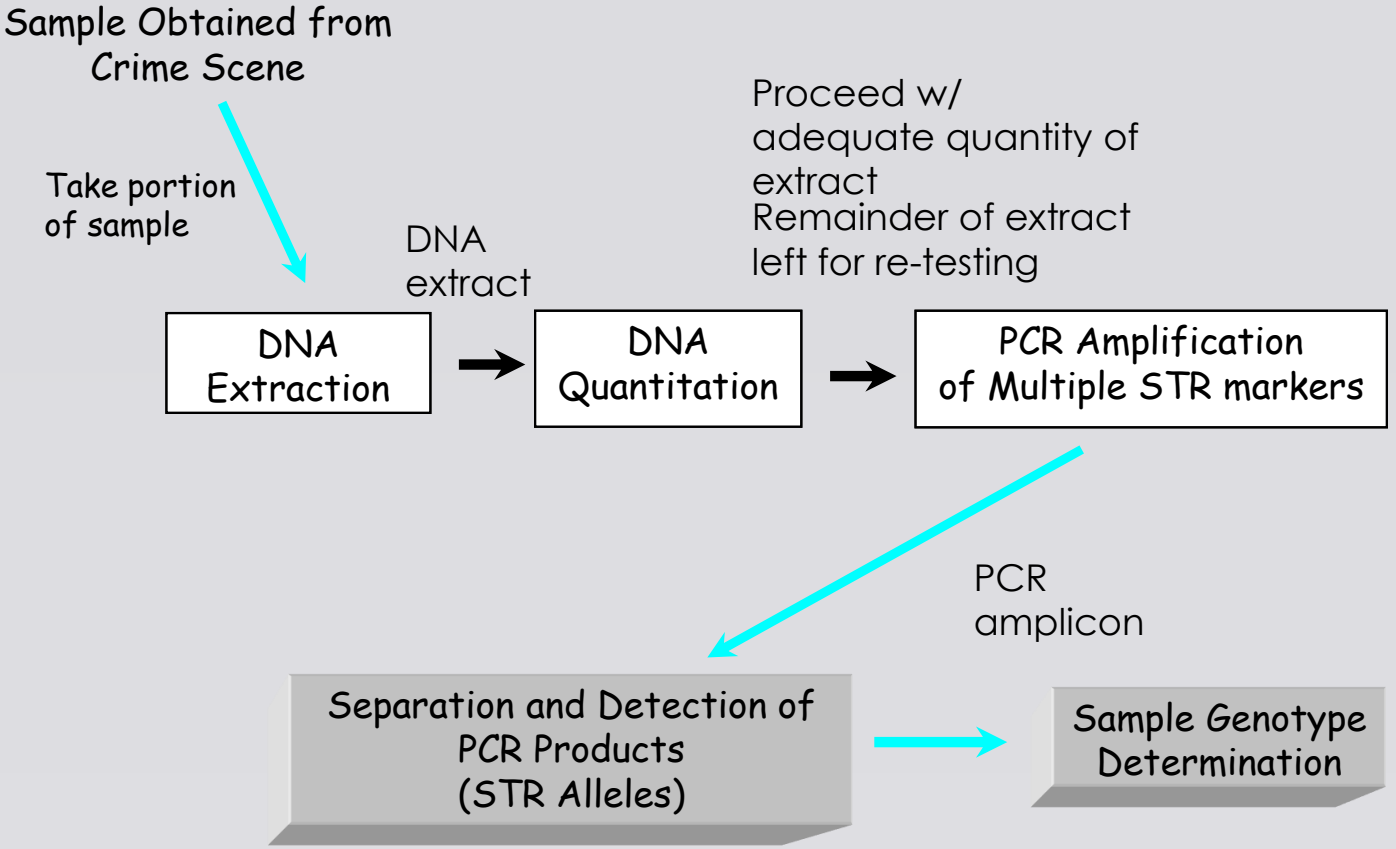
Does DNA vary from person to person?

Yes, except for identical twins, no two people will have the same DNA profile.

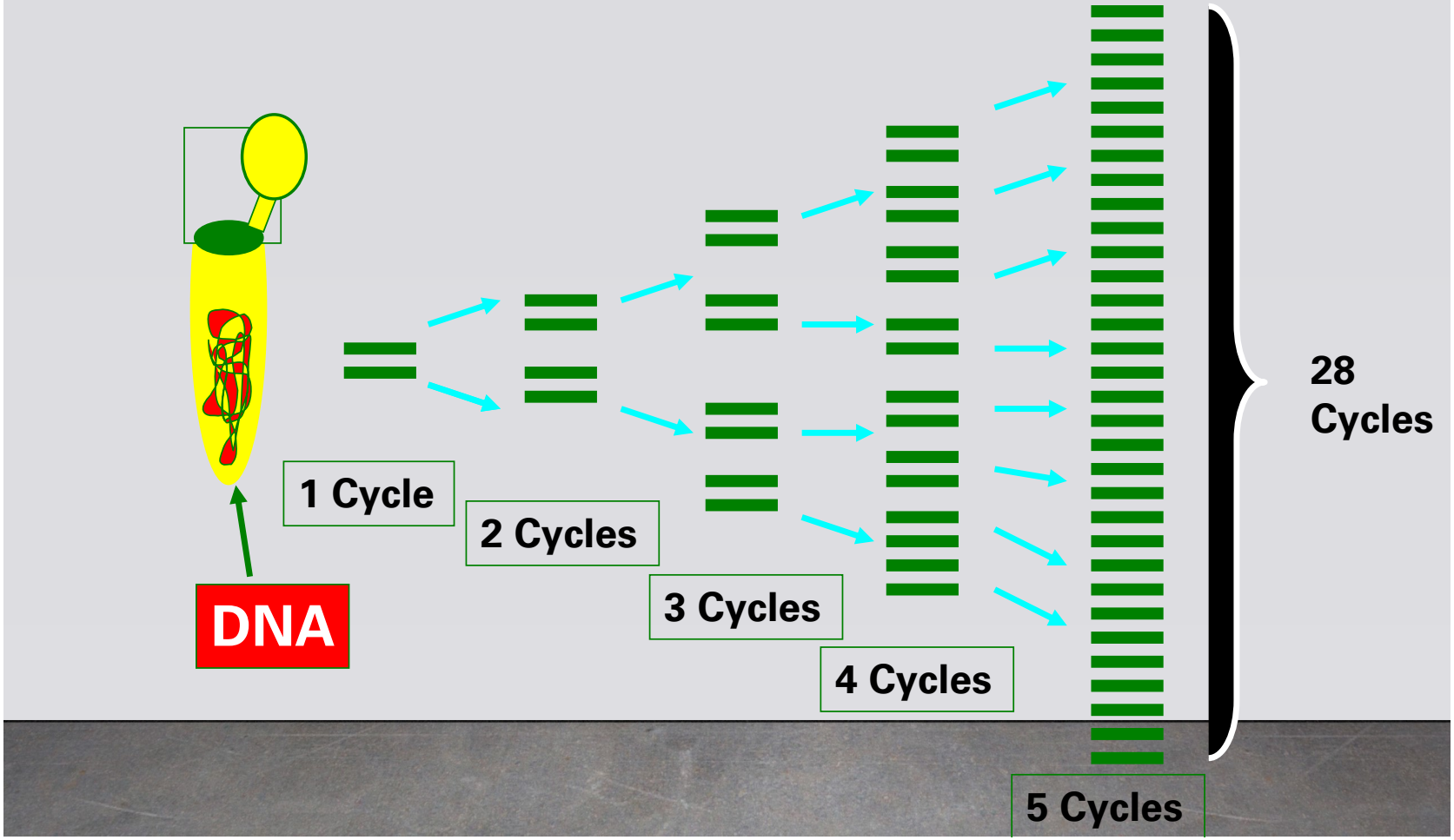
Can you identify this difference?

We do forensic testing on genes that do not code for any traits but are possessed by every individual. And since no two people have the same DNA profile, we can identify the difference.

Steps in DNA Sample Processing



Amplification—Making Copies
PCR (Polymerase Chain Reaction)



Last steps in DNA processing

- Detection and separation of DNA fragments on specialized machines called Genetic Analyzers
- DNA profile obtained using special software that assigns allele calls to DNA fragments
- Compare DNA Profiles from unknown samples to knowns
- Interpretation of the results obtained
- Conclusions based on results

Possible Conclusions

- No result
- Inconclusive
- Exclusion
- Inclusion

What exclusion means

- Unknown evidentiary profile and known DNA profile of the subject do not match.
- Known subject's DNA was not detected from the evidence sample, therefore; subject is excluded as a possible DNA donor of the evidentiary sample.

What inclusion means

- Unknown evidentiary profile and known DNA profile of the subject match (consistent with each other).
- The known subject cannot be excluded as a contributor to the DNA profile obtained from the evidence
- Provide appropriate statistical calculations to provide weight to the DNA match – how common is the DNA profile that was obtained from the evidence and matches subject

DNA Interpretation Considerations

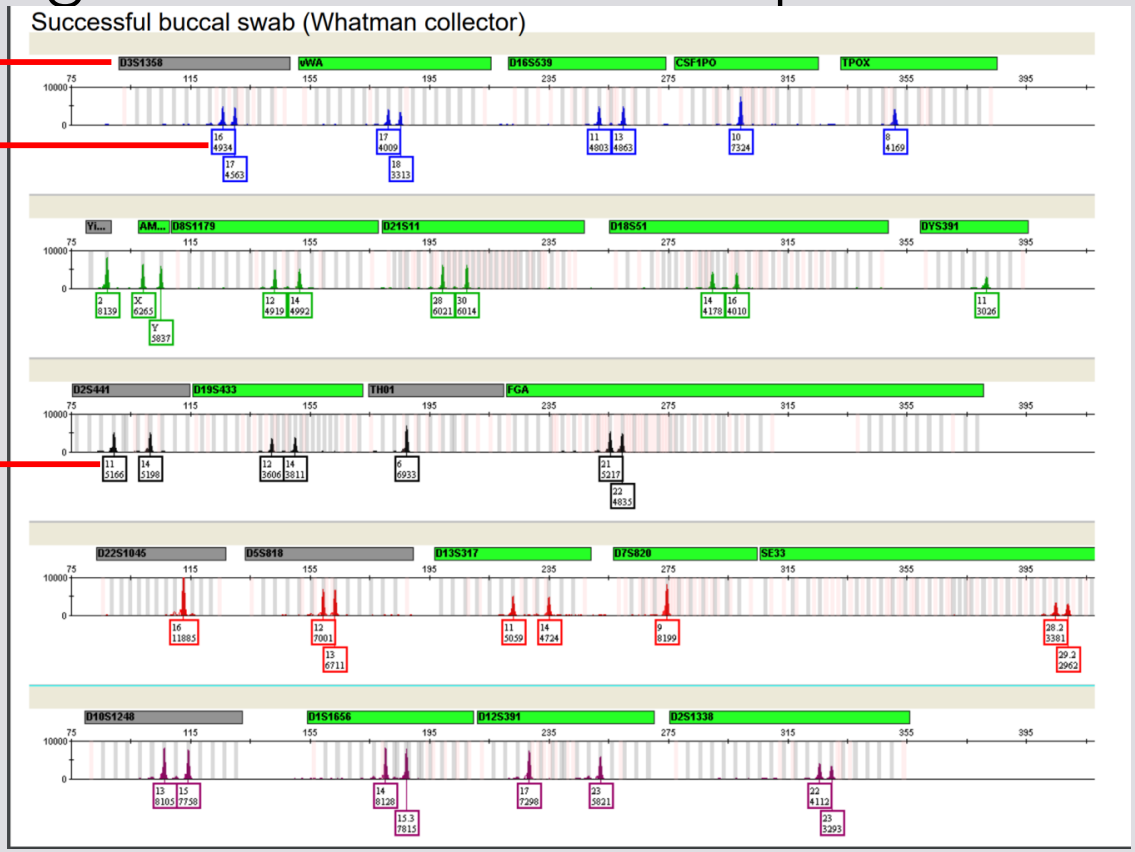
- Single Source profile vs. Mixture Profile
  - **Single Source** – DNA profile originated from a single individual
  - **Mixture** – DNA profile contains DNA from more than one individual
    - **Major vs. Minor** DNA donors in a mixture
- Analytical vs. Stochastic Thresholds
  - **Analytical Threshold** – an RFU value (peak height) where you are reasonably sure a peak is a true allele and not baseline or background noise
    - OSP analytical threshold in 2000 was 50 RFU
  - **Stochastic Threshold** – an RFU value (peak height) where you are reasonably sure that two alleles from both parents are being represented and there is no allele drop out
    - OSP stochastic threshold in 2000 was 150 RFU

Single Source Profile Example

Marker D3

Allele: 16
Peak height:
4934 RFU

Two alleles per
marker maximum



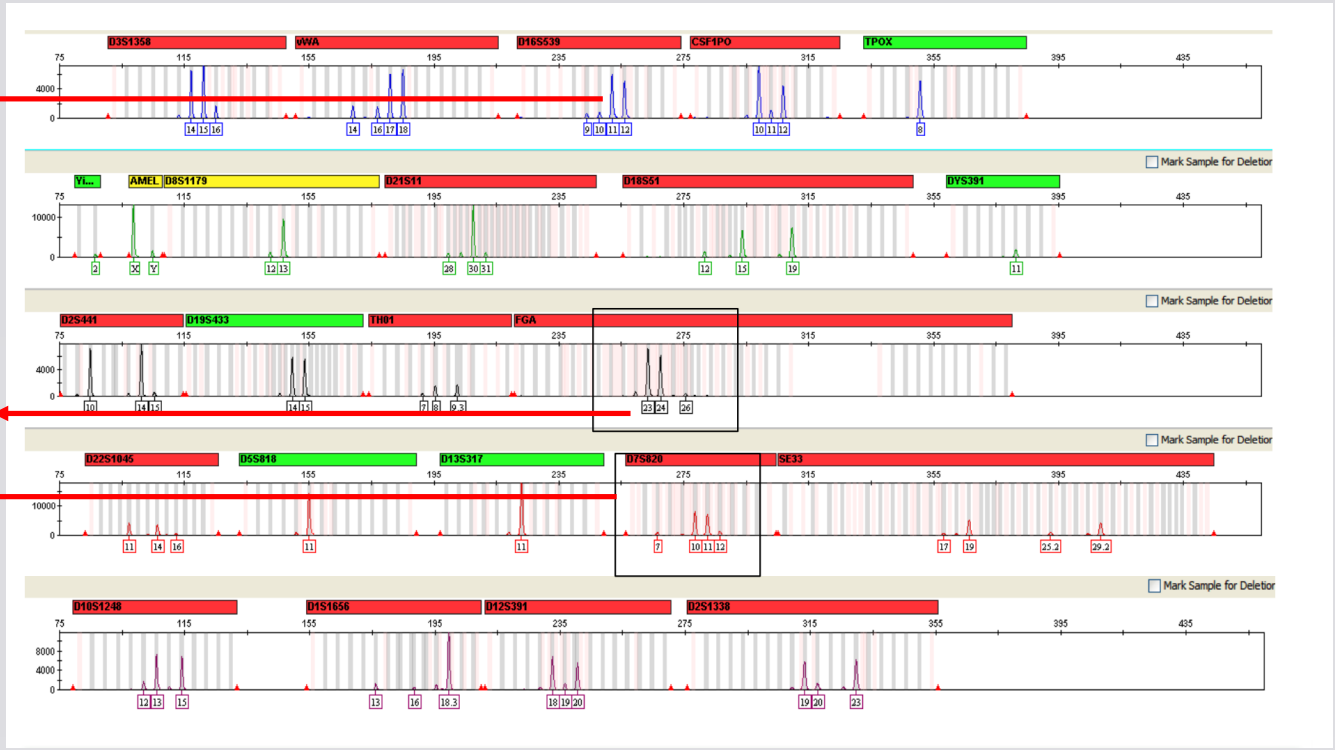
Profile from MAAFS conference – Globalfiler presentation 2014

Mixture Profile Example

Two major and two minor alleles

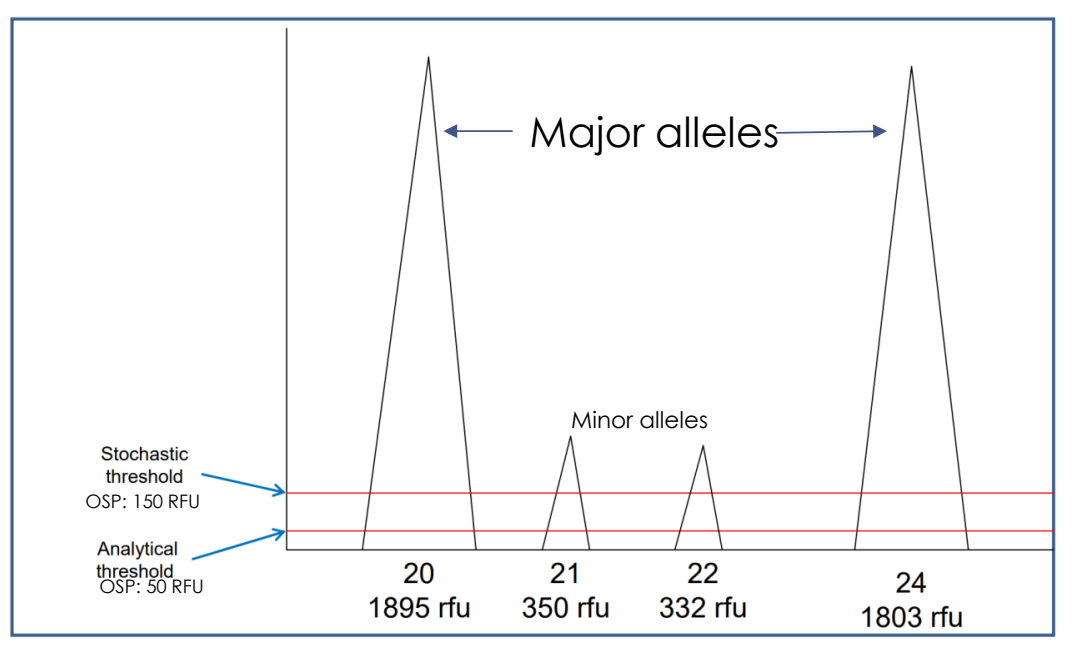
3 alleles at marker

4 alleles at marker



Profile from: https://www.thermofisher.com/content/dam/LifeTech/Documents/PDFs/Forensics-line-workflow.pdf

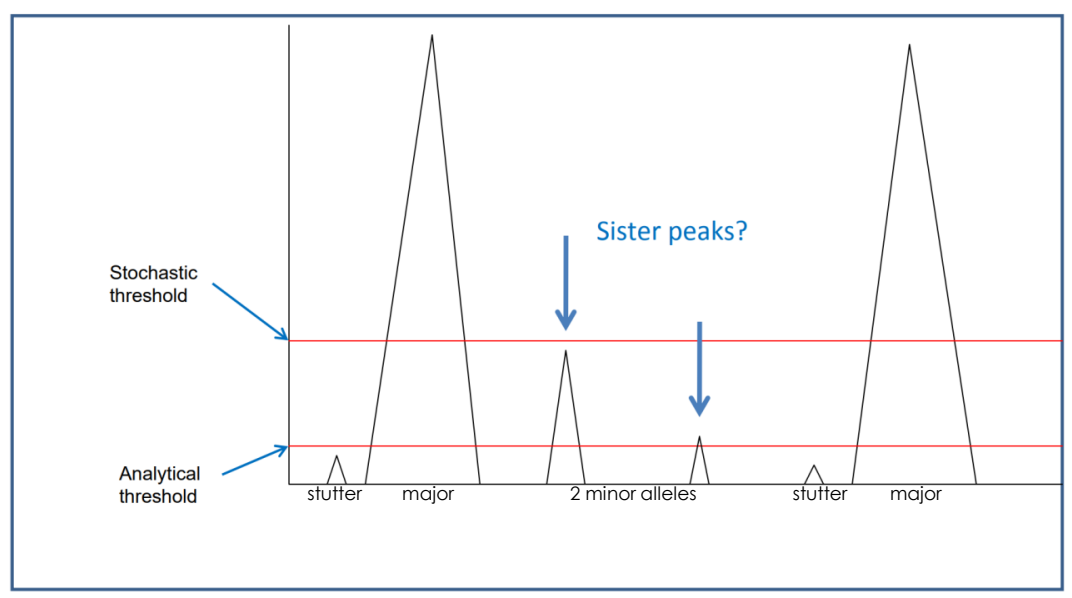
Analytical vs. Stochastic Thresholds



Two major and two minor alleles – all above analytical and stochastic thresholds

Slide info from: https://strbase.nist.gov/training/AAFS2011-MixtureWorkshop-Fundamentals.pdf

Analytical vs. Stochastic Thresholds Example



Two major and two minor alleles with two stutter peaks –
two minor alleles are above analytical but below stochastic thresholds

Slide info from: https://strbase.nist.gov/training/AAFS2011-MixtureWorkshop-Fundamentals.pdf

OSP Lab Report dated August 27, 2000

Exhibit 1 – Right Nike tennis shoe from victim

- Only one result was reported although 3 separate cuttings were tested from the shoe
- The reported conclusion is "…DNA profile from Exhibit 1 (right Nike shoe)…matches the DNA profile from Leah Freeman…".
- This report does not mention the following:
  - The DNA profile is in fact a mixture of two individuals, including a male DNA donor
  - Nicholas McGuffin is excluded as a contributor to the DNA profile obtained from this shoe

OSP Lab Report dated August 27, 2000

Exhibit 1 – Right Nike tennis shoe from victim

- OSP Lab did not report the mixture profile or the presence of male DNA because the alleles indicating a mixture and male DNA were less than the lab's stochastic threshold of 150RFU
- OSP Lab claimed "analyst discretion" for reporting the "best result" from a sample.

OSP Lab Report dated August 27, 2000

Exhibit 1 – Right Nike tennis shoe from victim

- OSP Lab should have reported the mixture profile because OSP Lab protocols from 2000 state the following:
  - Protocols define how to recognize and report a mixture profile
  - Protocol states "Peak height less than 150RFU may be interpreted with caution"
  - Protocol states "Peaks between 50 and 150 RFU will be considered for purposes of exclusion".
    - There were peaks present in profile from cutting 1.3 that were less than 150RFU and they excluded McGuffin. However, McGuffin's exclusion was not reported.
- OSP Lab protocols from 2000 **DO NOT** state that reporting a profile is up to "analyst discretion" or only "best results" will be reported.
- OSP Lab protocols DO NOT define "analyst discretion" or "best results"

OSP Lab Report dated August 27, 2000

Exhibit 2 – Left Nike tennis shoe from victim

- The DNA profile obtained from this sample is a mixture with Leah Freeman as the major contributor and the minor is a male.
- Nicholas McGuffin is excluded as a contributor to the minor male profile but that was not reported by the lab.

Possible Presence of a Same Contributor in Right and Left shoes of the victim

- There is a strong possibility that an unknown individual contributed DNA to both the right and left Nike shoes of Leah Freeman.
- How is a foreign profile deduced from a mixture profile?
  - Assume the number of contributors in the mixture
  - Assume a known contributor's DNA is present in the mixture
  - Subtract the known person's DNA from the mixture to obtain the foreign "deduced" profile

Possible Presence of a Same Contributor in Right and Left shoes of the victim Example of deduced profile

	Mixture Profile obtained from victim's vaginal swab	Known Profile of Victim A	Foreign Deduced Profile
Marker 1	12, 13, 14, 15	12, 13	14, 15
Marker 2	7, 8, 9, 9.3	8, 9	7, 9.3
Marker 3	20, 22, 23, 24	20, 24	22, 23
Marker 4	16, 18, 19, 21	19, 21	16, 18
Amelogenin	X, Y	X, X	X, Y

- Mixture of two individuals including at least one male donor.
- Victim A cannot be excluded.
- Subtract victim A's profile from the mixture.
- What remains is the deduced foreign profile of the unknown male.

Possible Foreign Alleles Obtained from Right and Left Nike Shoes of Leah Freeman

Exhibit #	1.2	1.3	2.6	2.4.1ul	2.5
Sample Description	heel	ankle	tongue swab	ankle	tongue cutting
	Right Nike Shoe		Left Nike Shoe		
Locus					
D3S1358	15, 16, 18	15	15, 18	ND	15
vWA	16, 19	16, 20	16	15	ND
D16S539	12	12	12, 13	ND	ND
CSF1PO	ND	ND	ND	ND	ND
TPOX	12	11	ND	ND	ND
D8S1179	14, 15	11, 15	11, 14, 15	12	ND
D21S11	29, 30	29, 30, 31	31	ND	ND
D18S51	ND	14, 21	17	ND	ND
D2S441	14	14, 16	11.3, 14, 16	14	ND
D19S433	ND	ND	ND	ND	ND
TH01	6, 9, 9.3	6, 8, 9	8	8	ND
FGA	20, 21	19	21	20	ND
D22S1045	14, 16	17	11, 17	13.2, 17	ND
D5S818	12	12	ND	ND	ND
D13S317	ND	8, 12	8	ND	ND
D7S820	ND	8, 13	ND	ND	ND
SE33	ND	18	19	ND	ND
D10S1248	13, 16	13	16	ND	ND
D1S1656	12, 16.3	12	12, 16.3	12, 16.3	12, 16.3
D12S391	18.3, 19	18.3, 22	18.3, 21, 22	ND	ND
D2S1338	ND	17, 20	17	20	ND

ND = possible foreign allele(s) not determined

Highlighted alleles are common in right and left shoe samples

Conclusions

- **Nicholas McGuffin's DNA is not detected on any items tested originally in 2000 or items retested in 2017.**
  - **Insufficient and inconclusive results DO NOT mean that McGuffin's DNA is identified in any samples.**
- **There is a strong possibility that one same unknown individual is present in both the right and left shoes of Leah Freeman.**

Curriculum Vitae

HUMA NASIR, MS, ABC-MB

Education

M.S. University of Florida 2006
Pharmaceutical Sciences with concentration in Forensic Serology and DNA

B.S. University of New Orleans 2000
Biological Sciences

Professional Experience

June 2017 – Present
Forensic DNA Consultant HN Forensic Consulting LLC, TX
Forensic DNA Expert providing consulting services to law enforcement agencies in the United States. As an expert, I provide independent review of the DNA testing and testify to my findings as needed. My services include case consultation, trial preparation, testing observation and trial testimony.

March 2019 – October 2023 DevLab *bio*, LLC, Coppell, TX
Vice President of Operations

- Responsible for the overall operations of laboratory, ensuring operations meet or exceed all key performance indicators
- Develop and implement operational standards for the lab
- Oversee laboratory testing and daily operations to complete all projects in the lab
- Ensures that regulatory requirements are met, monitoring test systems to ensure that they are in control
- Supervise employees, including all activities relative to staffing, work assignments, hiring/termination, performance reviews, orientation, and professional development
- Maintain client contact on all current and potential projects in the lab
- Oversee purchasing and testing of lab equipment to support efficiency/cost improvements.
- Create a culture of operational excellence, accountability and collaboration where teamwork and active problem-solving result in continuous improvement
- Lead strategic planning for lab; supporting continual growth, including equipment acquisition, personnel and process evolution.
- Oversee all lab budgeting activities and annual budget planning
- Maintain quality and efficiency, ensuring all laboratory day-to-day execution is consistent and in adherence with regulatory requirements

June 2017 – December 2018 RealTime Labs, Carrollton, TX

Lab Manager
Manage daily operations of the CAP accredited laboratory including supervision of ELISA and molecular testing.

June 2016 – June 2017 Bode Cellmark Forensics, VA

Senior Forensic DNA Analyst:

Duties include casework analysis and report writing, case reviews of work performed by other laboratories, preparing affidavits and providing expert testimony as needed. Also responsible for technical review of all validations provided to external government agencies to ensure compliance with accreditation standards and assist with laboratory work, data analysis and summary reports as needed.

January 2008 – December 2015 Orchid Cellmark/Cellmark Forensics, Dallas, TX

Technical Leader/Associate Laboratory Director

Forensic DNA Analyst III/IV/Team Leader (1/1/2008-11/31/11)
Supervisor Forensics (12/1/11-7/9/12)
Technical Leader, mtDNA and Y-STRs (7/9/12 – 3/4/13)
Technical Leader, autosomal STRs, Y-STRs and mt DNA (3/5/13-12/2015)

- Responsible for technical management of the laboratory, including technical problem solving of analytical methods. Responsible for method evaluation and proposing new or modified analytical procedures to be used by the laboratory.
- As Associate Director, assisted in the direction, overall operation and administration of the Forensic laboratory.
- Responsible for assisting with the oversight of training of new employees, quality control and quality assurance, and proficiency testing of all qualified forensic analysts in the laboratory.
- Conducted Internal Audits of the forensic laboratory and ensured compliance with various accrediting agencies. Ensured compliance with FBI's Quality Assurance Standards, SWGDAM guidelines, ASCLD standards and ISO17025 standards.
- Responsible for ensuring that casework is processed in an accurate and timely manner. Duties include case reviews, expert witness testimony as a court qualified expert, and client contact.
- Possesses in-depth expertise with all forensic DNA testing methodologies including autosomal STRs, Mini-STRs, Y-STRs and mitochondrial DNA testing.
- Continued casework analysis, reporting and technical review.

March 2001 – December 2007 ReliaGene Technologies, Inc. New Orleans, LA

Associate Scientist I (2001-2003):

- Extraction, PCR amplification and analysis of samples for CODIS upload.
- Assisted in development and production of Y-PLEX™ 5 and Y-PLEX™ 12 amplification kits, which consists of a primer mix, allelic ladder and controls, used for Y-STR analysis.
- **HIV Genotyping, DNA sequencing to determine patient's drug resistance profile.**
- **Performed Medical Diagnostics Testing for infectious diseases**

Forensic DNA Analyst I/II/III and Team Leader (2003-2007):

- Conduct scientific analysis on multiple forms of biological evidence on forensic casework utilizing PCR based DNA analysis following standard operating procedures for forensic DNA testing. Systems used on a routine basis include STR kits, Y-STR kits, MiniSTR, and Mitochondrial DNA analysis using the ABI 310, 3100 and 3130 Genetic Analyzers and the ABI 377 DNA Sequencer platforms.
- Responsible for processing casework in an accurate and timely manner. Prepare, write, and sign case reports, and available as an expert Forensic DNA analysis for court testimony.

- Routinely communicate directly with clients regarding various aspects of their case, from evidence collection to trial preparation.
- Available to less senior laboratory personnel as a resource for training, technical advice, problem solving, and questions.
- Assist Senior Forensic Scientists with the maintenance of training, QA/QC, safety measures, and proficiency testing in the laboratory.

Laboratory Experience

- DNA Extractions (PCR-STR)
- PCR Amplification
- PCR Analysis and Interpretation
- Paternity Testing
- Forensic Biology Screening (Presumptive and Confirmatory Immunoassays)
- Forensic Analysis, Case Reporting and Technical Review
- Y-STR Experience
- Mini STR Experience
- Mitochondrial DNA Experience
- Technical Reviews
- Case Reviews

Certifications

American Board of Criminalistics (**ABC**) – Molecular Biology

Memberships

Member – American Academy of Forensic Sciences (**AAFS**)

Testimony Experience

Qualified and testified as a Forensic DNA analyst/expert over 120 times in several different jurisdictions.

Publications

1. Shewale, J.G**., Nasir, H.,** Schneida, E., Gross, A.M., Budowle, B. and Sinha, S.K. 2004. Y-Chromosome STR system, Y-PLEX^{TM} 12, for forensic casework: Development and validation. J. Forensic Sci. 49: 1278 - 1290.
2. Sinha, S.K., Budowle, B., Chakraborty, R., Paunovic, A., Guidry, R.D., Larsen C., Lal, A., Shaffer, M., Pineda, G., Sinha S.K., Schneida, E., **Nasir, H.** and Shewale, J.G. 2004. Utility of the Y-STR typing system Y-PLEX^{TM} 6 and Y-PLEX^{TM} 5 in forensic casework and 11 Y-STR haplotype database for three major population groups in the United States. J. Forensic Sci. 49:

691-700.

3. Sinha, S.K., **Nasir, H.,** Gross, A.M., Budowle, B. and Shewale, J.G. 2003. Development and validation of the Y-PLEX™5, a Y-chromosome STR genotyping system, for forensic casework. J. Forensic Sci. 48: 985-1000.

4. Shewale, J.G., **Nasir, H.** and Sinha S.K. 2003. Variation in migration of the DNA fragments labeled with fluorescent dyes on the 310 Genetic Analyzer and its implication in the genotyping. The Journal of the Association of Genetic Technologists. 29: 60-64.

Abstracts

1. Orchid Cellmark's Osteo-Pure™ Bone Extraction Procedure Captures Degraded DNA to Improve STR Results.C.B. Smitherman, **H. Nasir**, W.L. Hoffman, R.W. Staub, and S.K. Sinha. Promega Meeting, 2010.

2. Shewale, J.G., **Nasir, H.,** Schneida, E., and Sinha, S.K, 2003. Development and Validation of a Y-Chromosome STR Genotyping System, Y-PLEX™ 12, for Forensic Casework. 29th Annual Meeting NEAFS 2003, Pittsfield, MA. European Academy of Forensic Science Triennial Meeting 2003, Istanbul, Turkey. 14th International Symposium on Human Identification 2003, Phoenix, AZ. American Academy of Forensic Sciences 56th Annual Scientific Meeting 2004, Dallas, TX.

3. Sudhir K. Sinha, PhD, Amrita Lal, MSFS, Chris Larson, BS, Alison Flemming, BA**, Huma Nasir, BS**, Elaine Schneida, BS, and Jaiprakash Shewale, PhD. Validation and Forensic Casework Applications of the Y-STR Genotyping Systems Y-PLEX™ 6 and Y-PLEX™ 5. Annual meeting of the American Academy of Forensic Sciences 2003, Chicago, IL.

4. Sinha, S.K., **Nasir, H.,** Schneida, E. and Shewale, J.G. Y-Chromosome Specific STR Analysis Using Y-PLEX™6 and Y-PLEX™5 Amplification Kits. FASEB Meeting 2002, New Orleans, LA.

5. Sinha, S., **Nasir, H.,** Schneida, E. and Shewale J. Y-Chromosome specific STR analysis using a combination of Y-PLEX™6 and Y-PLEX™5 amplification kits. Proc. 16th 9Meeting of the International Association of Forensic Sciences 2002, Edited by E. Baccino, pp. 21-24, Monduzzi Editore.